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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,070	02/07/2002	Sang Bae Kim	ASIA14.001AUS	2399

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EXAMINER

ASINOVSKY, OLGA

ART UNIT

PAPER NUMBER

1711

DATE MAILED: 07/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/073,070

Applicant(s)

KIM ET AL.

Examiner

Olga Asinovsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 May 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3-27 and 29-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-27 and 29-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

The cancellation of claims 2 and 28 is noted.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-27 and 29-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schauder U.S. Patent 6,383,439 in view of Schauder U.S. Patent 6,303,688 or Ilenda et al U.S. Patent 5,229,456.

The applicants amend a process in claim 1 by including "pelletizing the mixture, wherein the one or more monomers are added to the pelletized mixture." In other word, a polyolefin resin and an ethylene-alpha-olefin elastomer are mixed and pelletized before adding one or more monomers specified in claim 1.

The independent claim 26 is a polymer composition comprising: a polyolefin resin and a chemically modified ethylene-alpha-olefin elastomer specified in claim 26. Claim 26 is amending by including: "wherein the polymer composition is in the form of pellets."

Schauder'439 reference has been discussed under the 102(e) rejection at pages 2-4 of the office action mailed on 02/06/03, paper No. 7 and is incorporated here by reference.

Schauder'439 discloses chemically modified elastomers and blend thereof with polyolefins or polyamides or a mixture thereof for obtaining a polymer composition, column 1, lines 48-66 and column 2, lines 8-12. An ethylene-higher alpha-olefin polymer=EPDM is grafted with an unsaturated organic compound containing at least one carbonyl group, column 1, lines 49-52, for the present claims. The grafted monomer having a carbonyl group such as a maleic anhydride is readable in the present claims 1, 21, 26 and 38. The ethylene-alpha-olefin polymers, column 3, line 24 are readable in the present claim 14. The ethylene content for said ethylene-alpha-olefin polymer is from 30 to 80 and from 40 to 90 wt.%, column 1, lines 56 and 61, for the present claims 15-18 and 33-36. The grafting initiator such as a dialkyl peroxides are readable in the present claims 1 and 5. The graft polymerization is performed by a melt reaction with a peroxide and an unsaturated compound having a carbonyl function in a twin screw extruder having four temperature zones of 170 to 210 C, column 7, example 1, for the present claims 1 and 8. The conditions for grafting of the EPDM are the same that is in the original claim 1. Schauder'439 discloses the analogous polymer composition for the independent claim 26.

(A) The difference between the present claim 1 and Schauder'439 is the requirement in the amended claim 1 "the pelletizing the mixture". In other word, reference does not disclose the step of pelletizing the mixture of an ethylene-

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alpha-olefin elastomer and a polyolefin resin before adding one or more monomers to the pelletized mixture for the amended claim 1.

(B) And, also, reference Schauder'439 does not disclose that "the polymer composition is in the form of pellets" for the amended independent claim 26.

The new search has been made for a melt extruding process for making pellets.

Schauder '6,303,688 discloses rubber blends comprising a mixture of a grafted ethylene-alpha-olefin copolymer, an elastomeric copolymer, and a thermoplastic polymer, column 1, lines 22-26, column 3, lines 47-67 and column 5, lines 19-26. The ethylene polymer and the elastomer may be preblended by melt blending in a single or double screw extruder prior to blending with the thermoplastic polymer, column 5, lines 27-41. The elastomer and the grafted ethylene polymer were dry blended at the temperature 230 C. The extrudate can be pelletized, column 6, lines 47-53, for the amended claim 1 and the present claim 26.

Ilenda'456 discloses a blend of a graft copolymer with polyolefins. The blend was then extruded into strands; the strands were cooled and chopped into pellets, column 30, lines 10-15, for the present claims 1 and 26.

An extruder has a construction to force the molten polymer through a die. The die has an orifice having the desired construction. Conveniently, when there is a melt

extrusion step, the extrusion passed through an orifice for producing an article having the desired shape.

None of the cited references discloses the step of mixing a polyolefin resin and an ethylene-alpha-olefin elastomer and pelletizing of a said mixture before adding a functional monomer for the amended claim 1.

However, it would have been obvious to one of ordinary skill in the art to use a pelletizing the extrusion of the melt blending composition as discussed in Schauder' 688 or Ilenda'456 for producing pellets of the mixture of an ethylene-alpha-olefin elastomer and a polyolefin in Schauder'439 before adding a functional monomer for grafting for the purposes for making easy handling, storing and shipping the pellets mixture, for the amended claim 1.

It would have been obvious to one of ordinary skill in the art to use the polymer composition comprising a blend of grafted ethylene-alpha-olefin elastomers with a polyolefin resin and/or polyamides in Schauder'439 and process the extrusion through an orifice and cutting into pellets as suggested by Schauder' 688 or Ilenda'456, because the polymer composition in Schauder'439 can be produced into any shaped article. The motivation is that it is obvious to one having ordinary skill in the art to produce a polymer composition in the form of pellets, for the present claim 26. The present claim 26 as amended is a composition claim, not a product claim wherein a product is in the form of pellets.

The applicants' argument is that Schauder'439 does not disclose the pelletizing step of the mixture "in order to modify the EPDM within the extruder", page 8 in the Remarks. A method in the present claim 1 discloses "the mixing is performed at a temperature from about 150 to about 250 C" (original claim 8). Therefore, the pelletized mixture at that temperature is melted, and a melt grafting process would include grafting both EPDM and polyolefin resin. The polymer composition in the independent claim 26, line 3 claims "a chemically modified ethylene-alpha-olefin elastomer mixed with the polyolefin resin." Thus, only EPDM is chemically modified. The condition for grafting of the EPDM is a melt graft polymerization with a functional monomer. Schauder'439 discloses in the working example 1 at column 7 that EPDM is melt functionalized in a twin screw extruder having four temperature zones of 170 to 210 C. The conditions for the graft polymerization process in Schauder are analogous to the method in the original claim 1.

In light of the disclosure in Schauder'439 invention the grafted EPDM is melt blending with other polymer such as a polyamide or polyolefins by using a single or twin screw extruder, column 5, lines 9-13. Therefore, the extruded blend could be passed through the die for making pellets or granules for the present claim 26.

In light of the discussion above, there is the confusion between the process claims and the composition claims, because the composition as claimed in claim 26 is produced by a different process.

This action is not final in view of the new rejection.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 703-308-0041. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703-308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

O.A.

O.A.

June 27, 2003

Olga Asinovsky  
Examiner  
Art Unit 1711



James J. Seidleck  
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